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CHEMICAL ARMS REDUCTION AND NATIONAL SECURITY

BY

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USAWC MILITARY STUDIES PROGRAM PAPER

CHEMICAL ARMS REDUCTION AND NATIONAL SECURITY

AN INDIVIDUAL STUDY PROJECT

by

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ABSTRACT

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CHEMICAL ARMS REDUCTION AND NATIONAL SECURITY

CHAPTER I

INTRODUCTION

The United States has established a principal policy objective to negotiate and implement an effective and verifiable global ban on the development, possession, production, storage, transfer, and use of chemical weapons. As a first step in this regard, the United States and Soviet Union recently signed a bilateral agreement calling for the destruction of a major portion of their existing lethal chemical weapon and bulk agent stockpiles starting in 1992. The bilateral agreement also calls for a halt in the production of new chemical weapons. To achieve a world-wide ban on the development, acquisition and use of chemical weapons, the United States is actively participating in ongoing negotiations sponsored by the 40-nation Conference on Disarmament which meets periodically in Geneva.

Until such time as a verifiable worldwide ban can be implemented, the United States policy statements dictate that we will continue to maintain a small stockpile of serviceable chemical weapons to deter the use of such weapons by others. As an added deterrent, the U.S. will continue to develop and acquire defensive equipment to protect our forces and permit

them to operate in a chemically contaminated environment.[1] History has shown that when chemical weapons have been used in the past, they have been employed against forces not only lacking a retaliatory capability, but also adequate supplies of defensive equipment including gas masks and other protective clothing.[2]

This study will examine the status of ongoing negotiations to establish a global ban on chemical weapons and discusses several obstacles which could impede near term implementation of a truly effective and verifiable global chemical arms reduction agreement. In view of these limitations, chemical weapons proliferation will likely continue in certain areas of the world, while at the same time the deterrent value of our retaliatory stockpile gradually diminishes.

The United States and Soviet Union are committed to the destruction of a major portion of their retaliatory chemical weapon stockpile. The world-wide global ban currently being negotiated in Geneva is strongly supported by President Bush and the Congress. It is seen as a political means to enhance national security, while promoting regional stability and security among our allies. However, there is no assurance that all chemical capable nations will ever sign the agreement. Military and civilian leaders therefore, will be challenged to determine strategies, goals, and objectives to counter the possible threat of continuing chemical weapons

proliferation, both during the remaining Geneva negotiations and during the forthcoming arms destruction periods. This paper will attempt to address these major issues.

BACKGROUND - U.S. CHEMICAL WEAPON STOCKPILE

For many years the United States has maintained a stockpile of offensive chemical weapons for possible use in retaliation to a chemical attack by an adversary. The current chemical weapon stockpile is estimated to include 30,000 tons of chemical agent.[3] The vast majority of the stockpile was produced prior to 1969, and because of its age much of it is not considered serviceable. The stockpile includes three types of agents: GB, VX, and H series. The non-persistent nerve agent GB and persistent nerve agent VX both disrupt the central nervous system, lead to loss of muscular control, and often result in death. Mustard gas (H series) blisters the skin and can be lethal in large doses. The chemical agents are loaded into various weapons including rockets, mines, spray tanks, bombs and projectiles. In addition, bulk agents are stored in one ton containers for possible future weaponization.[4]

Starting in 1987, the U.S. began producing a new series of weapons often referred to as binary chemical weapons. These modernized weapons contain two relatively harmless chemicals which are stored separately. The two chemicals are

combined to form lethal agent after the weapon is launched. The binary weapons acquisition program includes 155mm artillery shells, a bomb called "Bigeye" and a chemical warhead for the Multiple Launched Rocket System.[5] The binary modernization program was justified initially in response to the alleged Soviet use of chemical weapons in Afghanistan and also as a ploy to convince the Soviets to negotiate in good faith for a verifiable chemical arms reduction agreement.[6]

The restart of chemical weapons production by the U.S. encountered considerable opposition in Congress. Critics argued that the existing unitary weapon stockpile was adequate for deterrence and that the renewed production would undermine the prospects for effective disarmament treaties, both with the Soviets and from a global point of view. Nevertheless, then Vice-President Bush cast tie-breaking votes in the Senate three times to authorize construction of the binary production facilities and loading of the first 155mm artillery shells.[7] Interestingly, the Soviets agreed to restart negotiations on a bilateral chemical arms reduction treaty shortly after the U.S. started production on its new binary weapons.[8]

For comparison purposes, the chemical weapon stockpile currently held by the Soviet Union is estimated to total between 40,000 and 50,000 tons of lethal agent. The Soviets announced that they stopped production of new chemical weapons in 1987.[9]

THE NEED FOR A CREDIBLE CHEMICAL WEAPONS AGREEMENT

The control of chemical weapons has been a major international concern ever since 90,000 people were killed and approximately one million were injured from poison gas in World War I.[10] Early efforts to control the use of chemical weapons culminated in 1925 when the Geneva Protocol was signed. This agreement prohibited the use of chemical weapons on the battlefield, but there was no provision making it illegal for nations to develop, acquire, and store the munitions.

Many nations, including the United States accepted the basic objectives of the protocol, while reserving the right to retaliate in kind if another nation chooses to use chemical weapons first. Further, the United States did not officially ratify the Geneva Protocol until 1975, due to opposition from veteran's groups and the chemical industry.[11] In 1980, the U.S. formally adopted its current policy objective calling for the verifiable global ban on chemical weapon development and acquisition.[12]

Although the use of chemical weapons is prohibited by the Geneva Protocol, some developing nations have used them in the recent past and others are actively acquiring expanded chemical weapon arsenals. For example both Iran and Iraq used chemical weapons during the 8-year Gulf War. Moreover,

Iraq is alleged to have used chemical weapons against its own Kurdish citizens after the village of Halabja was captured by Iran.[13] With the help of a Western firm, Libya recently acquired a huge chemical production facility in Rabata, which according to intelligence sources is currently producing mustard gas.[14] Several other countries including Afghanistan, Angola, Egypt, India, Israel, Somalia, and Sudan are alleged to have been involved in chemical arms deals during 1989.[15]

The proliferation of chemical weapons continues at a time when the United States and the Soviet Union are already obligated to destroy a major portion of their respective deterrent stockpiles. The 40 member nations participating in the Geneva Conference on Disarmament are committed to the total global demise of all offensive chemical weapons. A total of 149 nations met in Paris in January 1989 and reaffirmed their intentions to refrain from the use of chemicals on future battlefields. Nevertheless, it is doubtful that all chemical-capable states will ever become parties to a global ban on chemical arms, considering the continuing proliferation, fueled in part by the illegal use of poison gas in recent regional conflicts. These ambiguities present a challenge to policy makers tasked with development of future national security policy and strategy.

CHAPTER II

U.S. EFFORTS TO ELIMINATE CHEMICAL WEAPON STOCKPILES

The United States has a long standing policy objective, through five succeeding administrations, to outlaw future development, storage and use of chemical weapons. Significant progress has been made toward enactment of chemical arm reduction accords. For example, the United States recently signed a bilateral agreement with the Soviet Union and has actively participated during the last 20 years in the Geneva-based Conference on Disarmament seeking to negotiate a multilateral and global ban on chemical arms. Lastly, it should be noted that in November 1985, Congress directed the Department of Defense to unilaterally destroy most of its existing chemical weapon stockpile before April 1997.

U.S./ SOVIET AGREEMENT

In June 1990 U.S. President Bush and Soviet President Gorbachev signed a bilateral agreement to destroy all but 5000 tons of their chemical weapon stockpiles by the year 2002. Chemical weapon and agent destruction will begin in 1992 or as soon as the disposal technology can be implemented in a safe and environmentally acceptable method. The

bilateral agreement stems from an initiative proposed by President Bush in September 1989, suggesting that the two countries take the lead in establishing programs to reduce their respective stockpiles of chemical arms.

Some of the key aspects of the U.S. and Soviet agreement follow:

--In December 1989 the two countries exchanged stockpile inventory data and participated in on-site inspections to build confidence and validate stockpile data.

--Both countries agreed to stop production of new chemical arms. In this context, Secretary of Defense Dick Cheney informed the Congress in July 1990 that the requested fiscal year 1991 binary procurement funding totaling $140 million[16] was no longer needed. In light of U.S. efforts to negotiate a global chemical arms reduction treaty the Congress terminated the binary production program with passage of the fiscal year 1991 Defense Authorization Act.[17,18]

--The U.S. and Soviet Union agreed to destroy at least 50 percent of their existing stockpiles before the end of 1999. All but 5000 agent tons currently held by each side are due to be destroyed by 2002.

--Both countries will work toward development of safe and environmentally sound chemical weapon disposal procedures. On-site inspections will occur both during and after the destruction process to ensure program integrity.

--Both countries will actively seek to establish a multilateral agreement to effectively eliminate chemical arms worldwide. If such an agreement is signed, the U.S. and Soviet Union have agreed to expedite destruction of their stockpiles leaving no more than 500 tons (about two percent of the original U.S. stockpile) after the eighth year of the global treaty. At that point, the two countries would meet to discuss the desirability of destroying their remaining chemical arms during the next two years.[19]

Some view the bilateral agreement as a significant first step in achieving a total global demise of chemical weapon arsenals. Others point out, however, that the agreement will be impossible to verify. For example, verification measures discussed thus far only cover verification of stocks and destruction plans voluntarily declared by the two sides. There is virtually nothing either side can do to make sure new weapons are not secretly being produced or that existing

weapons are not intentionally hidden in some remote storage site.[20]

MULTILATERAL NEGOTIATIONS

The United States continues to actively participate, along with 40 other nations, in the Geneva-based Conference on Disarmament. Talks calling for a global ban on chemical weapons have been underway since the 1960's.[21] Several officials, including the United Nations Secretary-General Javier Perez de Cuellar[22] and Soviet Foreign Minister Shevardnadze,[23] have made recent appeals to speed negotiations on chemical arms control issues. In January 1989, 149 nations met in Paris and affirmed the need for early enactment of a multilateral chemical arms treaty.[24]

The U.S. has made substantial contributions to the Conference on Disarmament negotiations. Most noteworthy was a draft treaty presented to the Conference members in April 1984 by then Vice-President Bush. The document contained a number of verification proposals including mandatory monitoring of production facilities and stockpile disposal plants by on-site inspectors. The U.S. has also proposed a system of short notice challenge inspections of sites that are suspected of being involved in chemical arms production or possible unauthorized storage of such items.[25]

The multilateral treaty currently being negotiated in Geneva is designed to accomplish four main objectives:

-- Verify destruction of all existing chemical weapon stockpiles worldwide. Details encouraging open cooperation between nations in the development and demonstration of destruction technology have not been specified.

-- Prohibit the production of chemical weapons through routine reporting and monitoring of firms involved in the manufacturing of precursor chemicals.

-- Detect and deter the illegal manufacture of lethal agents or possible covert shipments of precursor chemicals through a system of routine and short notice challenge inspections conducted by international inspection teams.

-- Destroy all chemical weapon production facilities and disposal plants within the ten years following enactment of the treaty.[26]

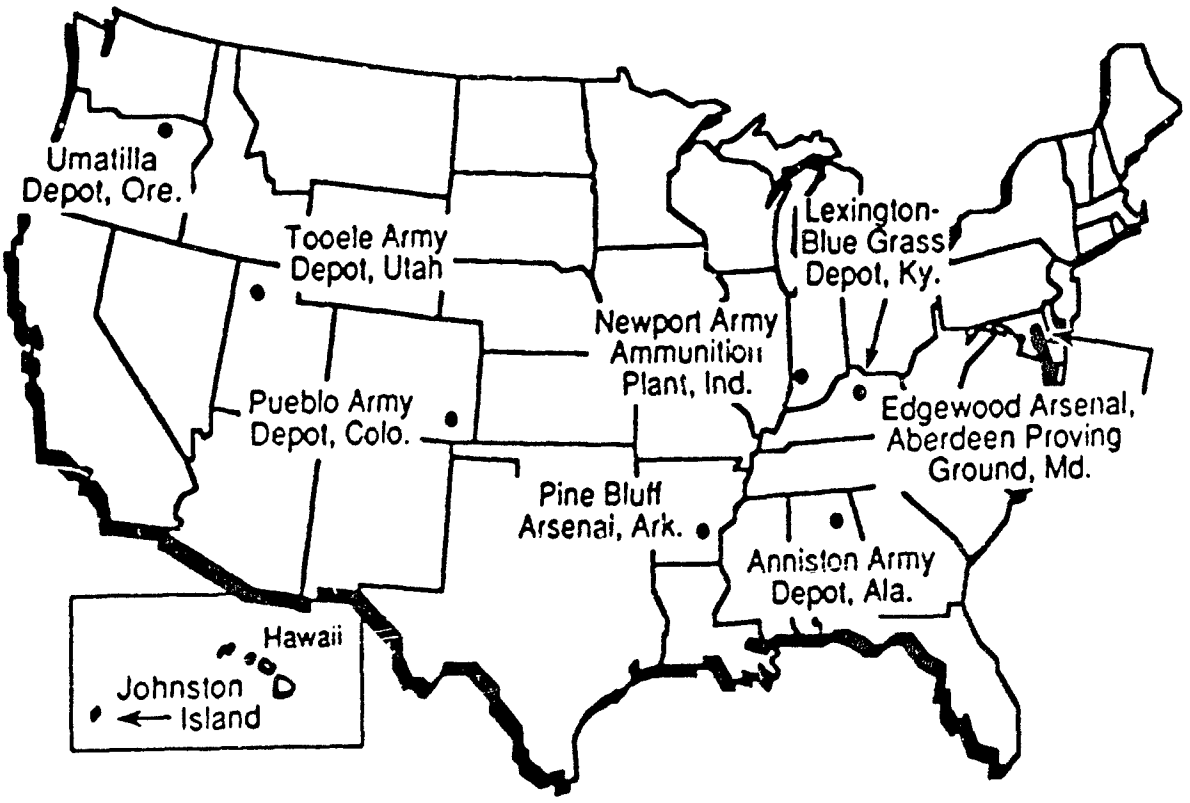
DESTRUCTION PROGRAM

Although the U.S. is actively participating in negotiations to establish a global ban on the stockpiling of lethal chemical weapons and agents, the Department of Defense is already committed to the destruction of the entire unitary chemical weapon stockpile.[27]

In November 1985, Congress passed Public Law 99-145 which directed the Department of Defense to destroy its existing stockpile of obsolete chemical weapons and agents by September 30, 1994. In September 1988, Congress extended the authorized completion date to April 1997. The Congressional mandate allows ten percent of the U.S. stockpile to be withheld from disposal if delays occur in the production of new modernized binary chemical weapons.[28]

The Army, as DOD's executive agent on chemical matters, has announced plans to construct high temperature chemical weapon incineration facilities at each of eight continental U.S. storage sites plus a prototype plant has been constructed on Johnston Atoll in the Pacific. A map showing the location of the planned chemical weapon disposal sites is included as figure I. The Army in July 1990 announced that it planned to move by truck, train, and cargo ship 100,000 artillery shells from West Germany to Johnston Atoll for temporary storage and eventual incineration.[29]

FIGURE I: MAP OF U.S CHEMICAL WEAPON DISPOSAL SITES



CHAPTER III

OBSTACLES TO GLOBAL CHEMICAL DISARMAMENT

Several important obstacles could impede the near term global demise of chemical weapon stockpiles. First, there is no assurance that all chemical capable states will become parties to the proposed multilateral agreement and therefore weapons proliferation could continue indefinitely. Second, effective implementation of the global disarmament accord will place heavy reliance on verification and export control procedures which some view as being overly obtrusive. Lastly, the chemical weapons destruction technology has not yet been proven to be safe and environmentally acceptable.

INTERNATIONAL PARTICIPATION

There is no assurance that all chemical-capable nations will ever become parties to the multilateral agreement currently being negotiated in Geneva.[30] At a time when the United States and the Soviet Union are planning to destroy a major portion of their existing chemical weapon stockpiles, the proliferation of chemical weapons continues to escalate in other parts of the world. Several U.S. government intelligence officials made statements before Congress in early 1989 indicating that upwards of 20 nations were known

to have entered the chemical arms race.[31] Moreover, an article in the April 1989 edition of Defense and Foreign Affairs identifies 40 countries which currently stock or are allegedly seeking to acquire chemical weapon arsenals. Many are not actively participating in ongoing talks to implement a global chemical arms reduction treaty.[32] (see FIGURE II)

Although 149 nations met in January 1989 at the Paris Conference and reached a consensus that there was an urgent need for early enactment of a global chemical disarmamont pact[33], there is no certainty that all chemical capable nations will ever sign the proposed multilateral chemical arms reduction treaty. Middle East countries such as Iraq, Iran, Libya, and Israel have given mixed signals. Many of the Arab states, the most notable being Iraq, have openly declared that chemical weapons must be retained to deter Israel from using its nuclear weapons.[34]

FIGURE II -- COUNTRIES THAT MAY HAVE CHEMICAL WEAPONS

Confirmed	Sufficient/ Circumstantial Evidence	Rumors
United States *	Bulgaria *	Argentina *
Soviet Union *	Burma *	Brazil *
France *	China *	Chile
Iraq	Egypt *	India *
Iran *	Ethiopia *	Indonesia *
	Israel	Jordan
	Libya	Pakistan *
	Syria	Peru *
	Taiwan	Saudi Arabia
	Vietnam	South Africa
	Cuba *	South Korea
	Czechoslovakia *	Thailand
	Germany *	Afghanistan
	Hungary	Angola
	Laos	Somalia
	North Korea	Sudan
	Poland *	
	Rumania *	
	Yugoslavia *	

* Member of Conference on Disarmament

Sources: "Chemical Addiction," Defense and Foreign Affairs, April 1989 and Document on Disarmament, Arms Control and Disarmament Agency.

VERIFICATION RELIABILITY

Clearly one of the major obstacles to implementing an effective chemical arms reduction agreement concerns the issue of verification. According to Major General William F. Burns, director of the U.S. Arms Control and Disarmament Agency, "verification of any chemical ban is going to be extremely difficult. Probably more difficult than verification of a strategic nuclear arms treaty."[35] While the U.S. chemical industry is generally inclined to accept the goals of a global chemical weapons treaty, some oficials view the challenge inspection procedures as being overly obtrusive. As a result, the constitutionality of such measures has been questioned. Lastly, even if challenge inspection procedures are eventually accepted, covert storage or production of outlawed chemical weapons would be extremely difficult to uncover.

The bilateral agreement, signed by the U.S. and Soviet Union in June 1990, provides for the joint development of procedures for on-site inspections of declared storage locations and items actually being demilitarized.[36] Unlike the U.S.- Soviet agreement which relies solely on the monitoring and inspection of declared inventory, the proposed multilateral pact will require participants to accept short notice (ie. 24 hours) challenge inspections. Each participating country would be required to accept

verification inspections being conducted at virtually any commercial chemical producer or suspected storage location.[37]

More than 100 chemical production facilities are known to exist worldwide and as many as 30 are located within the United States. All of these facilities would be subject to periodic visits by teams of international inspectors. Chemicals that have potential for use in toxic weapons are also used in the textile, pharmaceutical, and agricultural industries.[38]

Although private interest groups such as the Chemical Manufacturer's Association and the American Chemical Society support the concept for a global ban on chemical arms, they have voiced some significant concerns. For example, industry questions the legal propriety of routine inspections, citing a need to safeguard industry sensitive commercial production methodology and trade data.[39]

Some also question the constitutionality of anytime, anywhere inspections. The Fourth Amendment to the U.S. constitution protects citizens from "unreasonable searches and seizures." It is possible that in order to achieve an effective arms control agreement, individual protection guaranteed under the Constitution may need to be overriden in the interest of national security.[40]

Even if no-right-of-refusal challenge type inspections <u>are</u> utilized it will be impossible to detect all possible cheating. For example, a new chemical arms plant recently

constructed in Libya was specially designed so that after a button is pushed it can be automatically cleaned within a few hours, making it impossible for inspectors arriving within 24 hours of initial appointment to detect previous production of toxic chemical agent.[41]

EXPORT CONTROLS

The proposed multilateral agreement would establish stringent controls over the export of precursor chemicals needed to manufacture lethal agent. Previous attempts by the U.S. to control the shipment of such chemicals have been largely unsuccessful. Many of the precursor chemicals also have legitimate commercial applications, and for that reason exporting and developing nations are likely to balk at export controls that could limit future business opportunities.

The Arms Export Control Act of 1976 prohibited shipment of dozens of chemicals by U.S. manufacturing concerns to certain countries such as Libya, Iran, Iraq, and Syria. Later in 1985, the U.S. joined a group of 19 industrialized nations known as the Australia Group, forming a coalition to further expand export controls. These agreements have been circumvented. For example, Alcolac International of Baltimore was found guilty of violating these laws in 1989. According to court records the company shipped thiodiglycol -- a precursor for mustard gas -- to Iran. The company,

knowing that such shipments were illegal, sent the material to a West German firm for eventual re-shipment to Iran. The problem was further compounded because the chemical thiodiglycol also has legitimate commercial applications for textile, plastic and antifreeze manufacturing.[42]

The multilateral agreement will require all participating countries to prohibit the manufacture of lethal agent. It will also require strict reporting requirements for many precursor chemicals supplemented with periodic verification of production and shipping records by international inspection teams. Obviously these reporting requirements could involve disclosure of sensitive business information. Poor countries in particular will likely challenge the need for such stringent controls, because chemicals needed for legitimate purposes to include the production of pesticides would become increasingly more difficult to obtain. Moreover, chemical manufacturers everywhere, may view the control as profit inhibitors.[43]

DISPOSAL TECHNOLOGY

The U.S. and Soviet Union have been independently working to develop chemical weapon disposal technology. The U.S. initiated operational verification testing of its disposal technology during the summer of 1990 after a lengthy delay. The U.S. technology development program historically

has been prone to delays, and some question if the selected approach will ever be completely safe and environmentally acceptable. Similar problems have been reported by the Soviets.

In 1988 the U.S. Army completed construction of a prototype high temperature chemical incineration facility on Johnston Atoll in the Pacific Ocean. In the summer of 1990 the Army initiated operational testing at the prototype disposal plant, some 32 months behind schedule. Delays were caused by difficulties in obtaining environmental permits, statutory requirements which expanded the scope of operations from just one type of chemical weapon to the full array of chemical munitions contained in the stockpile, and contractor staffing problems.[44] In addition, many Pacific nations and the environmental group Greenpeace have opposed incineration of chemicals on Johnston Atoll warning that high temperature burning could accidentally disperse deadly chemicals into the atmosphere.[45]

The Army has also announced plans to build separate high temperature incineration facilities at each of the eight continental U.S. chemical stockpile storage locations. A recent report by the General Accounting Office reflects problems which will likely impede timely completion of the Congressionally mandated destruction program. Total chemical weapon destruction program cost estimates have doubled since 1985 -- from $1.7 billion to more than $3.4 billion. Costs

will continue to escalate and it is likely that the Congressionally mandated completion date of 1997 will be extended based on more stringent than anticipated environmental requirements; problems in obtaining operating permits under the Resources, Conservation, and Recovery Act; and opposition from local citizens at three of the eight sites.[46]

The Soviet Union started construction of a chemical weapons disposal plant in 1987, but in August 1989 the plant was shut down before a single weapon had been destroyed. The plant, located about 12 kilometers from Chapaylvsk, a city of 90,000 people and 40 kilometers from Kuybyslev, a city with a population of 1.3 million, was closed as a result of many environmental and safety considerations raised by the citizenry.[47]

CHAPTER IV

CONCLUSIONS AND RECOMMENDATIONS

The United States has established broad national security policy objectives which envision enhancement of strategic stability through pursuit and implementation of equitable and verifiable, arms control agreements while continuing to develop and maintain superior conventional warfighting capability. Additionally, security policy prohibits the transfer of technology or resources to hostile countries for use in the development or production of mass destruction munitions.[48]

A global treaty outlawing the stockpiling and use of chemical weapons is currently being negotiated by the 40 member nations of the Geneva based Conference on Disarmament. The multilateral agreement will provide a viable means to mitigate the threat of chemical weapons being introduced on future battlefields. But, there is no guarantee that a total global demise of chemical weapons will ever be totally achieved. First, there is no assurance that all chemical weapon capable states will become parties to the multilateral agreement. Second, even with implementation of mutually acceptable challenge inspections, cheating will be difficult, if not impossible to detect.

For many years the U.S. has maintained a stockpile of chemical weapons to retaliate against an aggressor's first use of such weapons. In addition troops have been trained and equipped to survive in a chemically contaminated environment. During the next seven years ninety percent of our retaliatory stockpile is scheduled to be destroyed based on existing legislation and agreements. It is likely that chemical weapon proliferation will continue among third world nations while the multilateral negotiations continue in Geneva, and also during the forthcoming stockpile disposal periods. To achieve the desired ends and enhance national security during the interim periods, the following concepts and strategy are recommended.

THE MULTILATERAL CHEMICAL TREATY

Current U.S. national security objectives encourage negotiators to adopt equitable and verifiable arms reduction treaties as a primary means of achieving strategic stability. In my opinion, the path to eventual enactment and implementation of an effective multilateral global ban on chemical arms should be focused on the following strategic concepts.

-- To assist in the development of the multilateral treaty, expand the scope of the bilateral U.S. and

Soviet agreement to develop and demonstrate mutually acceptable on-site inspection procedures, including provision for "trial challenge inspections". These procedures would be similar to those envisioned, but not spelled out in detail under the proposed multilateral agreement. The existing bilateral agreement only covers the verification of storage and destruction of declared stocks.

-- Continue to actively participate in ongoing multilateral negotiations at the 40-member Conference on Disarmament to enact a global ban on the acquisition, storage and use of chemical weapons. Include provisions in the convention to establish possible multilateral trade and economic sanctions that could be taken against countries who refuse to sign the treaty or later fail to abide by the treaty terms after ratification.

-- Continue to assume a leading U.S. role to develop and demonstrate a chemical weapons destruction technology that is environmentally acceptable. This information should be openly shared with other interested nations to provide a confidence building stimulus for the early enactment of a multilateral treaty. Article IV of the proposed multilateral convention indicates that appropriate bilateral arrangements for the sharing of

destruction technology information will be worked out later.

-- Prior to acheiving the multilateral agreement, continue to enforce export controls over precursor chemicals to minimize current and future proliferation of chemical weapons.

ENHANCED NATIONAL SECURITY STRATEGY

Although the U.S. has vowed to never use chemical weapons first, many believe the existence of a retaliatory stockpile has deterred the use of chemicals against U.S. forces in all wars and conflicts subsequent to World War I. In the future, the size of our stockpile and its resulting deterrent value will gradually decline. The following list of strategy options is recommended to counter this possible future vulnerability.

-- Adopt a plan for immediate response to chemical attack through an escalated and overwhelming use of conventional weapons by the U.S. and its allies.

-- Adopt a plan to maintain binary weapons production facilities on "warm layaway" as a possible stick to encourage chemical capable nations to become honest participating parties to the multilateral arms reduction

agreement. These facilities should not be destroyed until the last possible moment.

-- Discourage any further use of chemical weapons by continuing to use human and national technical intelligence sources to monitor potential use of chemical weapons during the remaining negotiations and to monitor compliance with the terms of the disarmament treaty after its enactment.

-- Continue robust funding for an expanded research, development and acquisition program to purchase improved protective clothing and chemical agent detection devices to enable our military forces to survive a future chemical attack. Furthermore, discourage nations from attempting to violate the multilateral agreement after it is enacted by continuing to enhance a strong chemical defensive posture.

ENDNOTES

1. George Bush, National Security Strategy of the United States, March 1990, p. 27.

2. Matthew Meselson, Chemical Weapons and Anti-Chemical Protection, pp. 2-3.

3. Rodney J. McElroy, Briefing Book on Chemical Weapons, p. 11.

4. U.S. General Accounting Office, CHEMICAL WEAPONS: Obstacles to the Army's Plan to Destroy Obsolete U.S. Stockpile, p. 8 (hereafter referred to as ("GAO, Obstacles")

5. The Arms Control Association, Background Paper: Chemical Weapons and Arms Control, p. 2.

6. McElroy, p. 16.

7. The Arms Control Association, p. 2.

8. Personal Interview with Dennis K. Fargo, Commander U.S. Navy, Joint Chiefs of Staff Representative for International Negotiations, 19 December 1990.

9. The Arms Control Association, p. 3.

10. John Isaacs, "Banning Chemical Weapons," Technology Review, October 1990, pp. 33-36.

11. McElroy, p. 15-16.

12. Hugh Stringer, Deterring Chemical Warfare: U.S. Policy Options for the 1990s, p.27.

13. Patrick G. Marshall, "Obstacles to Bio-Chemical Disarmament," Congressional Quarterly Editorial Research Report, 29 June 1990, p.366.

14. Philip C. Clark, "Bush Draws Line in Middle Eastern Sand to Counter 'New Hitler' on the Loose," ROA National Security Report, 9 September 1990, p.5.

15. SIPRI Yearbook of World Armaments and Disarmament--1990, pp. 18-114.

16. U.S. Congress, "The End of Binary Chemical Weapons," Congressional Record, 25 July 1990, p. H5438.

17. U.S. Laws, Statutes,etc., "Legislative History, Public Law 101-510", U.S. Code, Congressional and Administrative News, January 1991, pp. 2931 and 2958.

18. U.S. Congress, Senate, Committee on Appropriations, 12 July 1990, p. 2.

19. "Summary of U.S.-Soviet Agreement on Chemical Arms," New York Times, 1 June 1990, p. 8.

20. Marshall, pp. 366-367.

21. U.S. Congress, Fiscal Year 1991 Arms Control Impact Statements, p. 116.

22. "Conference on Disarmament Urged to Speed Work on Chemical Weapons Ban," UN Chronicle, June 1990, p.30.

23. Chris Hedges, "Shevardnadze Asks End to Chemical Weapons," New York Times, 26 September 1990, p. 8.

24. McElroy, p. 18.

25. Fiscal Year 1991 Arms Control Impact Statements, pp. 116-117.

26. Conference on Disarmament, Report of the Ad Hoc Committee on Chemical Weapons, 10 August 1990, pp. 21-36.

27. SIPRI Yearbook of World Armaments and Disarmament - 1990, p. 532.

28. "GAO, Obstacles", pp. 8-11.

29. "Nervous About Nerve Gas - Plans to Destroy Chemical Weapons Cause a Pacific Uproar", Time, 6 August 1990, p. 28.

30. Marshall, p.366 and 375.

31. McElroy. p. 12.

32. "Chemical Addiction," Defense and Foreign Affairs, April 1989, pp. 7-19.

33. McElroy, p. 18

34. Isaacs, p. 38.

35. Marshall, p. 375.

36. New York Times, 1 June 1990, p.8.

37. Marshall, p. 375.

38. Mark D. Budensiek, " A Chemical Weapons Convention: Can it Assure the End of Chemical Weapons Proliferation?" Stanford Journal of International Law, Spring 1989, p. 655.

39. J. Aroesty, K.A. Wolf, and E.C. River, Domestic Implementation of a Chemical Weapons Treaty, pp. v-xi.

40. Eric Hamburg, Arms Control Verification and the U.S. Constitution, pp. 1-6.

41. Brad Roberts, Chemical Weapons: Proliferation Control, An Alliance Issue, p.184.

42. Marshall, pp. 371-372.

43. Ibid., pp. 371-375.

44. U.S. General Accounting Office, CHEMICAL WEAPONS: Stockpile Destruction Delayed at the Army's Prototype Disposal Facility, pp. 2-4.

45. Trevor Findlay, "Chemical Disarmament and the Environment," Arms Control Today, September 1990, pp. 12-13.

46. "GAO, Obstacles", pp. 2-3.

47. Peter Almquist, "Destruction Plant at Chapayevsk: 'Safe...(If) There Are No Accidents'," Arms Control Today, September 1990, p. 14.

48. Bush, p. 2.

BIBLIOGRAPHY

1. Almquist, Peter. "Destruction Plant at Chapayevsk: Safe . . . (If) There Are No Accidents." Arms Control Today, Volume 20, September 1990, p.14.

2. Arms Control Association. Background Paper: Chemical Weapons and Arms Control. Washington: September 1989.

3. Aroesty, J., Wolf, K.A. and River, E.C., Domestic Implementation of a Chemical Weapons Treaty, Santa Monica: Rand Corporation, October 1989.

4. Bailey, Kathleen. "Poison Gas in the Gulf." Christian Science Monitor, 22 February 1991, p.18.

5. Budensiek, Mark D. "A New Chemical Weapons Convention: Can it Assure the End of Chemical Weapons Proliferation?" Stanford Journal of International Law, Vol 25, Spring 1989, pp. 647-679.

6. Bush, George. National Security Strategy of the United States. Washington: The White House, March 1990.

7. Clarke, Philip C. "Bush Draws Line in Middle Eastern Sand to Counter 'New Hitler' on the Loose." Reserve Officers Association National Security Report, Vol. 8, September 1990, p. 5.

8. Conference on Disarmament. Report of the Ad Hoc Committee on Chemical Weapons to the Conference on Disarmament. 10 August 1990.

9. "Conference on Disarmament urged to Speed Work on Chemical Weapons Ban." UN Chronicle, Vol 27, June 1990, pp. 30-31.

10. Felton, John. "Approval Seen on Chemical Weapons." Congressional Quarterly, 9 June 1990, p.1800.

11. Findley, Trevor. "Chemical Disarmament and the Environment." Arms Control Today, Volume 20, September 1990, pp. 12-16.

12. Hamburg, Eric. Arms Control Verification and the U.S. Constitution. Stanford: Stanford University, Center for International Security and Arms Control, August 1989.

13. Hedges, Chris. "Shevardnadze Asks an End to Chemical Weapons." New York Times, 26 September 1990, p.8.

14. Isaacs, John. "Banning Chemical Weapons." Technology Review, October 1990, pp. 33-40.

15. Marshall, Patrick G. "Obstacles to Bio-Chemical Disarmament." Congressional Quarterly Editorial Research Reports, Vol. 1, 29 June 1990, pp. 366-377.

16. McGeorge, Harvey J. "Chemical Addiction." Defense and Foreign Affairs, April 1989, pp.17-19.

17. Meselson, Matthew. Chemical Weapons and Anti-Chemical Protection. Cambridge: Harvard University, May 1990.

18. McElroy, Rodney J. Briefing Book on Chemical Weapons. Boston: Council for a Livable World Education Fund, October 1989.

19. "Nervous About Nerve Gas, Plans to Destroy Chemical Weapons Cause a Pacific Uproar." Time, 6 August 1990, p.28.

20. Roberts, Brad. Chemical Weapons: Proliferation, Control An Alliance Issue. Washington, D.C.: Center for Strategic and International Studies, March 1989, pp. 171-186.

21. Stockholm International Peace Research Institute. SIPRI Yearbcok 1990, World Armaments and Disarmament. Oxford: Oxford University Press, 1990, pp. 113-133.

22. Stringer, Hugh. Deterring Chemical Warfare: U.S. Policy Options for the 1990's. Washington: Pergamon-Brassey's, April 1986.

23. "Summary of U.S.-Soviet Agreement on Chemical Arms." New York Times, 1 June 1990, p.8.

24. U.S. Congress. Joint Committee. Fiscal Year 1991 Arms Control Impact Statements. 101st Cong., 2d Sess. Washington: Government Printing Office, 1990, pp. 99-124.

25. U.S. Congress. "The End of the Binary Chemical Weapons." Congressional Record. 101st Cong, 2d Sess, vol 136, no. 97, 25 July 1990, p. H5483.

26. U.S. Laws, Statutes, etc. "Legislative History, Public Law 101-510 (Defense Authorization Act for Fiscal Year 1991), U.S. Code, Congressional and Administrative News, January 1991, pp. 2931-2932 and 2958.

27. U.S. General Accounting Office. CHEMICAL WEAPONS: Obstacles to the Army's Plan to Destroy Obsolete U.S. Stockpile GAO/NSIAD-90-155. Washington: GAO, 24 May 1990.

28. U.S. General Accounting Office. CHEMICAL WEAPONS: Stockpile Destruction Delayed at the Army's Prototype Disposal Facility (GAO/NSIAD-90-222. Washington: GAO, 30 July 1990.